What is claimed is:

1. A controller system for use in a subterranean well comprising:

a controller located in the well; and

a signal source capable of putting a command signal into the well;

wherein the controller distinguishes an *a priori* unknown, but repeating command signal.

2. The controller system of claim 1 in which the controller further comprises:

a memory unit;

a microprocessor;

a buffer;

an analog-to-digital converter; and

a downhole tool interface.

3. The controller system of claim 1 in which the signal source provides a pressure sequence.

4. The controller system of claim 1 in which the signal source provides an acceleration.

5. The controller system of claim 1 in which the signal source provides variable flow rates of fluid.

6. The controller system of claim 1 in which the signal source provides variations in applied force.

7. The controller system of claim 1 in which the signal source provides variations in stress or strain.

8. The controller system of claim 1 in which the controller uses at least one computed parameter to distinguish the command signal.

9. The controller system of claim 8 in which the controller further comprises a buffer to store data used to create a first profile and a second profile, and in which the at least one computed parameter includes the correlation coefficient between the first profile and the second profile.

10. A controller for use in a subterranean well comprising:

a memory unit;

a microprocessor;

a buffer;

an analog-to-digital converter; and

a downhole tool interface;

in which the microprocessor executes a program stored in the memory unit to determine whether to initiate the downhole tool interface based on the recognition of an *a priori* unknown, but repeated command signal.

11. The controller of claim 10 in which the command signal is sampled by the analog-to-digital converter and the samples are stored in the buffer.

12. The controller of claim 11 in which a portion of the samples stored in the buffer represent the initial command signal and a portion of the samples in the buffer represent the repeated command signal.

13. The controller of claim 12 in which the recognition is based on a comparison of the samples representing the initial command signal to the samples representing the repeated command signal.

14. The controller of claim 10 in which the recognition is based on a computed parameter.

15. The controller of claim 14 in which the computed parameter is a correlation coefficient.

16. A method to determine whether an *a priori* unknown, but repeating command signal has been issued into a well comprising:

taking data samples at a desired location in the well;

storing the data samples in a buffer;

computing parameters using the data samples in the buffer;

comparing the computed parameters to pre-defined tolerances; and

deciding whether a command signal was issued based on the comparison results.

17. The method of claim 16 in which the computing parameters includes computing a first and second mean, a first and second standard deviation, and a correlation coefficient.

18. A method to control a downhole tool in a subterranean well comprising:

placing a controller in a desired location in the well;

sending a repeating signal from a signal source to the controller;

recording samples while the signal is being sent in a buffer in the controller to create upper and lower profiles in the buffer;

comparing the upper profile to the lower profile to determine whether the profiles constitute a match; and

initiating actuation of the downhole tool if a match is found.

19. The method of claim 18 in which the comparing includes computing a correlation coefficient.

20. The method of claim 18 in which the comparing includes comparing the mean and standard deviation of the upper profile to the mean and standard deviation of the lower profile.